

IN THE CLAIMS

Cancel claims 27, 38, 39, 45, and 46 without prejudice.

Please amend claims 1, 5, 8, 20, 21, 25, 28, 37, 40, 41, 44, and 47 to the following:

--1. (Twice Amended) A wireless communication system comprising:

a number of sensors each having one or more antenna associated therewith and being adaptable to be located on or within an element, each sensor being adaptable to detect at least one respective predetermined characteristic of said element; and

control transceiver means, operable to communicate in a wireless manner with said number of sensors, for supplying a RF signal to at least one antenna;

whereby, in response to said RF signal, the respective sensor or sensors and the at least one antenna associated therewith generate by use of electromagnetic coupling therebetween a characteristic signal indicative of a detected respective characteristic or characteristics and modulate the same so as to obtain an output signal and transmit said output signal.

--5. (Twice Amended) A wireless communication system as in claim 3, wherein the characteristic signal is modulated with a power signal so as to obtain the output signal.—

--8. (Twice Amended) A wireless communication system comprising:

a number of actuators each having one or more antenna associated therewith and being adaptable to be located on or within an element and being adaptable for causing said element to deform in a desired manner when actuated; and

control transceiver means, operable to communicate in a wireless manner with said number of actuators, for supplying a modulated command signal to at least one antenna;

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whereby, in response to said modulated command signal, material characteristics of the respective actuator or actuators cause said modulated command signal to be demodulated and said element to achieve the desired deformation.--

--20. (Amended) A wireless communication system as in claim 10, wherein the desired actuator or actuators demodulates the received modulated command signal so as to form an actuation signal.--

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--21. (Amended) A system for monitoring and/or deforming a structure in a desired manner, said system comprising:

a number of devices each including at least one of a sensor and an actuator each having one or more antenna associated therewith and being adaptable to be located on or within said structure, in which each said sensor is adaptable for monitoring at least one predetermined characteristic of said structure and each said actuator is adaptable for causing said structure to deform in said desired manner when actuated; and

control means for transmitting a command signal to at least one antenna in a wireless manner;

whereby, in response to said command signal, (i) the respective sensor or sensors and the at least one antenna associated therewith generate by use of electromagnetic coupling therebetween a characteristic signal indicative of a detected respective characteristic or characteristics and modulate the same so as to obtain an output signal and transmit said output signal and (ii) the respective actuator or actuators cause said structure to deform in said desired manner.--

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--25. (Amended) A system as in claim 21, wherein said control means communicates with each said device over a microwave frequency range.--

--28. (Amended) A system for causing a structure to be deformed in a desired manner, said system comprising:

a number of sensors each having one or more micro-strip type antenna associated therewith and being adaptable to be located on or within said structure and being adaptable for measuring at least one predetermined characteristic of said structure;

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a number of actuators each having one or more micro-strip type antenna associated therewith and being adaptable to be located on or within said structure and being adaptable for causing said structure to deform in said desired manner when actuated;

control means for transmitting a microwave signal in a wireless manner to a desired number of said sensors, wherein, in response thereto, the respective sensor or sensors and the at least one antenna associated therewith generate by use of electromagnetic coupling therebetween a characteristic signal indicative of a detected respective characteristic or characteristics; and

means for processing each said characteristic signal and for supplying each processed signal to appropriate one or ones of the actuators so as to actuate the same and cause said structure to deform in said desired manner.—

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--37. (Amended) An element for use in a system for monitoring and/or deforming a structure in a desired manner, said element having at least one antenna associated therewith and being adaptable to be located on or within said structure and being adaptable to operate as at least one of a sensor device and an actuator device, in which said element monitors at least one predetermined characteristic of said structure when operating as a sensor device and in which said element causes said structure to deform in said desired manner when operating as an actuator, and, in which said element is operable to receive a signal transmitted thereto in a wireless manner to activate the antenna thereof and enable said element to monitor the at least

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one predetermined characteristic of said structure when operating as a sensor device and enable said element to cause said structure to deform in said desired manner when operating as an actuator, wherein said element is adaptable to operate simultaneously as a sensor device and an actuator device, and wherein the antenna is a micro-strip type antenna and wherein said element includes a grating layer.—

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--40. (Amended) An element as in claim 37, wherein said element includes only passive electronic devices.--

--41. (Amended) An element as in claim 37, further having a protective cover layer and a substrate having a slot and a feedline.--

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--44. (Amended) An element for use in a system for monitoring and/or deforming a structure in a desired manner, said element being adaptable to be located on or within said structure and having at least one antenna and a rechargeable type storage device, in which energy is provided to said rechargeable type storage device from a signal transmitted to said antenna in a wireless manner for storage thereat.--

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--47. (Amended) An element as in claim 44, wherein said rechargeable type storage device is a thin film battery.—

Please add the following new claims:

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--48) (New) An element for use in a system for monitoring and/or deforming a structure in a desired manner, said element having at least one antenna associated therewith and being adaptable to be located on or within said structure and being adaptable to operate as at least one of a sensor device and an actuator device, in which said element is operable to monitor at least one predetermined characteristic of said structure when operating as a sensor device and

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in which said element is operable to cause said structure to deform in said desired manner when operating as an actuator, and, in which said element is operable to receive a signal transmitted thereto in a wireless manner to activate the antenna thereof and enable said element to monitor the at least one predetermined characteristic of said structure when operating as a sensor device and enable said element to cause said structure to deform in said desired manner when operating as an actuator whereby, when operating as a sensor device, the respective sensor and the at least one antenna associated therewith generate by use of electromagnetic coupling therebetween a characteristic signal indicative of a detected respective characteristic or characteristics and modulate the same so as to obtain an output signal and transmit said output signal.

49) An element for use in a system for monitoring and/or deforming a structure in a desired manner, said element having at least one antenna associated therewith and being adaptable to be located on or within said structure and being adaptable to operate as at least one of a sensor device and an actuator device, in which said element monitors at least one predetermined characteristic of said structure when operating as a sensor device and in which said element causes said structure to deform in said desired manner when operating as an actuator, and, in which said element is operable to receive a signal transmitted thereto in a wireless manner to activate the antenna thereof and enable said element to monitor the at least one predetermined characteristic of said structure when operating as a sensor device and enable said element to cause said structure to deform in said desired manner when operating as an actuator, wherein the antenna is a micro-strip type antenna and wherein said element includes a grating layer.—